CLAIM AMENDMENTS

1-49 (Canceled)

50. (New) A method for controlling the power delivered to a discharge light by an alternating (AC) power signal via a ballast circuit which resonates at a predetermined value of the frequency of said alternating power signal, the method including:

maintaining the value of the frequency of said alternating power signal to be always less than said predetermined value after the discharge light has struck and incrementally changing the frequency of the AC power signal to maximise or stabilise the power delivered to the discharge light, wherein the frequency increments are controlled so as to not exceed a predetermined maximum increment value selected to prevent plasma drop-out in response to an increment in said frequency.

51. (New) A method according to claim 50 including causing the frequency of the power signal to approach the arc frequency at which the discharge light enters the third discharge state, in which discharge the light enters an arc discharge condition, and controlling the power signal frequency to prevent entry into that state.

52. (New) A method according to claim 50 including controlling the frequency of the power signal so as to reduce the difference between the frequency of the power signal and the arc frequency, in which discharge the light enters an arc discharge condition, as much as possible without causing the discharge light to enter an arc discharge state.

53. (New) A method according to claim 50 including varying the frequency of the power signal according to a measure of the power delivered to, or converted in to radiant energy by, the discharge light.

54. (New) A method according to claim 53 including monitoring the amount of power converted by the discharge light or delivered to it by the ballast circuit, and adjusting the alternating power signal in response to variations in the monitored power so as to maximise the power delivered to or converted by the discharge light.

55. (New) A method according to claim 50 including adjusting the frequency of the alternating power signal so as to maximise the proportion of the power in the power signal received by the ballast circuit which is delivered to the discharge light thereby.

56. (New) A method according to claim 50 including decreasing the frequency of the AC power signal in response to decreases in the delivered power thereby to increase the power delivered to the discharge light.

57. (New) A method according to claim 50 including adjusting the AC power signal frequency when responding to variations in the delivered power so as to cause a stabilisation in delivered power.

58. (New) A method according to claim 57 including increasing the frequency of the AC power signal in response to increases in the delivered power, and decreasing the frequency of the AC power signal in response to decreases in the delivered power, thereby to stabilise the delivered power.

59. (New) A method according to claim 50 including monitoring the value of a selected property of the alternating power signal: as input to the ballast circuit; and/or, as present

within the ballast circuit; and/or, as delivered to the discharge light, and deriving from the monitored value of the selected property a measure of the power delivered to the discharge light.

60. (New) A method according to Claim 59 in which said selected property is the value of the electrical currents both as present within the ballast circuit and as concurrently delivered to the discharge light.

61. (New) A method according to claim 55 including sampling values of said selected property of the alternating power signal once within separate successive sampling periods, wherein each sampling period is no greater in duration than one half of the duration of a single cycle of said alternating power signal.

62. (New) A method according to claim 51 including adjusting any one or more of the frequency, amplitude, or phase of the alternating power signal when adjusting that signal in response to variations in the delivered power.

63. (New) A method according to claim 50 including maintaining the frequency of the AC power signal at a value sufficiently low that during at least a part of a cycle of the AC power signal an inductor means of the ballast circuit is caused to saturate, whereby the magnitude of the back-e.m.f. induced thereby is less than a predetermined threshold value during said part of said cycle.

64. (New) A power controller for controlling the power delivered to a discharge light by an alternating (AC) power signal via a ballast circuit which resonates at a predetermined value of the frequency of said alternating power signal, including:

a power control means arranged to control the AC power signal to maintain the value of the frequency of said AC power signal to be always less than said predetermined value after the discharge light has struck to incrementally change the frequency of the AC power signal to maximise or stabilise the power delivered to the discharge light, wherein the frequency increments are controlled so as to not exceed a predetermined maximum increment value selected to prevent plasma drop-out in response to an increment in said frequency.

65. (New) A power controller according to claim 64 in which the power control means is arranged to vary the frequency of the power signal to approach the frequency at which the discharge light enters the third discharge state, in which discharge the light enters an arc discharge condition, and to control the power signal frequency to prevent entry into that state.

66. (New) A power controller according to claim 64 in which the power control means is arranged to control the frequency of the power signal so as to reduce the difference between the frequency of the power signal and the arc frequency, at which discharge the light would enter an arc discharge condition, as much as possible without causing the discharge light to enter an arc discharge state.

67. (New) A power controller according to claim 64 in which the power control means is arranged to vary the frequency of the power signal according to a measure of the power delivered to, or converted in to radiant energy by, the discharge light.

68. (New) A power controller according to Claim 64 in which the power control means is arranged to monitor the amount of power converted by the discharge light, or delivered to it by the

ballast circuit, and to adjust the AC power signal in response to variations in the monitored power so as to maximise the power converted by, or delivered to, the discharge light.

69. (New) A power controller according to claim 64 arranged to adjust the frequency of the alternating power signal so as to maximise the proportion of the power in the power signal received by the ballast circuit which is delivered to the discharge light thereby.

70. (New) A power controller according to claim 65 arranged to decrease the frequency of the AC power signal in response to decreases in the delivered power thereby to increase the power delivered to the discharge light.

71. (New) A power controller according to claim 64 arranged to adjust the AC power signal frequency when responding to variations in the delivered power so as to cause a stabilisation in delivered power.

72. (New) A power controller according to claim 71 arranged to increase the frequency of the AC power signal in response to increases in the delivered power, and decrease the frequency of the AC power signal in response to decreases in the delivered power, thereby to stabilise the delivered power.

73. (New) A power controller according to claim 64 in which the power control means includes power monitor means arranged to monitor the value of a selected property of the AC power signal: as input to the ballast circuit; and/or, as delivered to the discharge light, and to derive from the monitored value of the

selected property a measure of the power delivered to the discharge light.

74. (New) A power controller according to Claim 73 in which said selected property is the value of the electrical current delivered to the discharge light.

75. (New) A power controller according to claim 64 in which the power monitor means is arranged to sample values of said selected property of the AC power signal once within separate successive sampling periods, wherein each sampling period is no greater in duration than the one half of the duration of a single cycle of said AC power signal.

76. (New) A power controller according to claim 64 in which the power control means is arranged to adjust any one or more of the frequency, amplitude, or phase of the AC power signal when adjusting that signal in response to variations in the delivered power.

77. (New) A power controller according to claim 64 in which the power control means is arranged to maintain the frequency of the AC power signal at a value sufficiently low that during at least a part of a cycle of the AC power signal an inductor means of the ballast circuit is caused to saturate, whereby the magnitude of the back-e.m.f. induced thereby is less than a predetermined threshold value during said part of said cycle.

78. (New) A power controller according to claim 64 wherein an inverter means is arranged to receive a DC power input signal and to generate said alternating (AC) power signal therefrom for powering the discharge light via a ballast circuit, wherein the power control means includes an inverter control means arranged

to generate inverter control signals for controlling said inverter so as to control the AC power signal generated thereby.

79. (New) A power controller according to claim 78 wherein said power control means includes said inverter means.